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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,770	02/15/2005	Kazuyuki Mikubo	Q86329	3434

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EXAMINER	
DATSKOVSKIY, MICHAEL V	
ART UNIT	**PAPER NUMBER**
2835	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,770	MIKUBO ET AL.	
	Examiner	Art Unit	
	Michael V. Datskovskiy	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,20 and 33* is/are rejected.

7)☒ Claim(s) *5,7-19 and 21-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 February 2005* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/16/05;02/21/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6, 20 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Batchelder (US Patent 6,019,165).

Batchelder teaches an electronic device 10 mounting a cooling apparatus, Fig. 2, said cooling apparatus comprises: a liquid cooling unit 20 discharging heat generated by the heat generator 4 with a coolant 50; and an air cooling unit having four cooling fin groups 28 for exhausting heat discharged by the liquid cooling unit 20 in atmosphere, wherein the air cooling unit is stacked onto the liquid cooling unit 20. Batchelder teaches furthermore said cooling apparatus according to claim 1, wherein the liquid cooling unit comprises: a heat absorption surface 24 absorbing heat by one of method of contacting and joining with the heat generator; a flow path 60, in which the coolant 50 flows, formed along the heat absorption surface 24; and a liquid cooling pump 54 for circulating the coolant within the flow path 60, wherein the air cooling unit comprises an air cooling fan 30 for flowing air to the air cooling fin groups 28. Batchelder teaches furthermore said cooling apparatus according to claim 2, wherein the flow path is a closed loop with a circulation method, and in a part of the closed loop, a micro channel

structure 52 having a smaller cross section area than a cross section area of the flow path 60 is formed.

3. Claims 1-4 and 33 are also rejected under 35 U.S.C. 102(b) as being anticipated by Suganuma (Japan Patent JP 2001133174 A, submitted by the Applicant as a Prior Art in the IDS).

4. Suganuma teaches an electronic device E1 mounting a cooling apparatus 1, Figs. 1-12, , said cooling apparatus comprises: a liquid cooling unit discharging heat generated by the heat generator E1 with a coolant; and an air cooling unit having cooling fin group 50 for exhausting heat discharged by the liquid cooling unit in atmosphere, wherein the air cooling unit is stacked onto the liquid cooling unit. Suganuma teaches furthermore said cooling apparatus according to claim 1, wherein the liquid cooling unit comprises: a heat absorption surface 20 absorbing heat by one of method of contacting and joining with the heat generator; a flow path, in which the coolant flows, formed along the heat absorption surface 20; and a liquid cooling pump 83 for circulating the coolant within the flow path, wherein the flow path is formed by joining a base having a groove 3 and the heat absorption surface 52; and wherein the air cooling fin group and the base are formed in a unit.

Allowable Subject Matter

5. Claims 5, 7-19, 21-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Claim 5: A cooling apparatus according to claim 2, wherein the flow path is formed within at least one of fin among a plurality of fins composing the air cooling group. Claim 7: A cooling apparatus according to claim 6, wherein the air cooling unit comprises a first air channel totally covering the air cooling fin group, and an air flow generated by the air cooling fan is controlled by the first air channel. Claim 8: A cooling apparatus according to claim 1, wherein at least one air hole for supplying air to the air cooling unit is formed in the liquid cooling unit. Claims 9-14: A cooling apparatus according to claim 1, wherein the air cooling fin group is divided into a plurality of groups, and an air hole supplying air to the air cooling fin group is formed in each plurality of groups of the air cooling fin group in the liquid cooling unit.
Claims 15-19: A cooling apparatus according to claim 1, wherein the air cooling unit comprises: a piezoelectric material supported by a support member; and an air blow plate, which is bonded to the piezoelectric material, generating air flow through vibration thereof by controlling voltage of the piezoelectric materials. Claim 21: A cooling apparatus according to claim 20, wherein the micro channel structure is formed by joining a base arranging a plurality of narrow grooves and the heat absorption surface. Claims 22-27: A cooling apparatus according to claim 1, wherein the liquid cooling unit comprises a piezoelectric pump having a platy piezoelectric element as a driving source, and the coolant is circulated by the piezoelectric pump. Claim 28: A cooling apparatus according to claim 1, wherein the liquid cooling unit comprises a piezoelectric pump having a toric piezoelectric actuator as a driving source, and the coolant is

circulated by the piezoelectric pump. Claims 29-30: A cooling apparatus according to claim 1, wherein the liquid cooling unit comprises an evaporation-method pump circulating the coolant with evaporation of the coolant by a heat generator. Claims 31-32: A cooling apparatus according to claim 1, wherein the apparatus further comprises: an air cooling fan supplying air to a liquid cooling pump for circulating the coolant and to the air cooling fin group; and an electric control circuit driving the liquid cooling pump and the air cooling fan, wherein, an input to the electric control circuit is DC current.

7. The prior art made of record provided in the PTO Form 892 and not relied upon is considered pertinent to applicant's disclosure. Examiner points out that each of the prior art reference is applicable for the rejection of the at least claims 1 and 33 of the instant application.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Datskovskiy whose telephone number is (571) 272-2040. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael V Datskovskiy
Primary Examiner
Art Unit 2835

12/13/2006